ELECTRICAL/ELECTRONIC ENGINEERING TECHNOLOGY (EET)

EET-1015 Introduction to Computer Maintenance and Repair
3 Credits
Introduction to the field of personal computer maintenance and repair. Overview of hardware and software components associated with personal computer systems. Survey of techniques and methods used by technicians to maintain, repair, troubleshoot and upgrade personal computers. Coverage of both interpersonal as well as technical abilities necessary for success in this industry. Survey of the history and evolution of the personal computer.
Lecture: 3 hours
Prerequisite(s): IT-1090 Computer Applications or concurrent enrollment.

EET-1035 Operating Systems and Software for PC Technicians
4 Credits
Hands-on course provides both theoretical and practical training with computer operating system setup, maintenance, upgrading, troubleshooting and support. Lab activities provide direct experience with techniques and tools used to install, configure, operate, secure and troubleshoot operating system software in desktop and mobile devices. Fundamental career training for computer service technicians.
Lecture: 3 hours. Laboratory: 2 hours
Prerequisite(s): EET-1015 Introduction to Computer Maintenance and Repair; or concurrent enrollment.

EET-1055 Computer Hardware Support
4 Credits
Assemble computer components, install, configure and maintain devices and PCs, properly and safely diagnose, resolve and document common hardware issues while applying troubleshooting skills. Focusses on providing appropriate customer support. Designed in conjunction with industry standard training and certification guidelines.
Lecture: 3 hours. Laboratory: 2 hours
Prerequisite(s): EET-1015 Introduction to Computer Maintenance and Repair.

EET-1081 Computer User Support
1 Credit
Overview of techniques and skills necessary for career opportunities in computer user support fields, with particular emphasis on process of microcomputer service and repair. Coverage of both interpersonal and technical abilities necessary for success in this industry. Problem-solving strategies for common user support issues, customer service skills, help desk operation, documentation requirements and information resources for user support.
Lecture: 1 hour
Prerequisite(s): Recommend IT-1090 Introduction to Computer Applications or proficiency in Windows and MSOffice.

EET-1100 Introduction to Robotics
2 Credits
Introduction to direct current circuits and supporting mathematics, binary and hexadecimal numbering systems, and learning a programming language that is constrained to an embedded training platform.
Lecture: 1 hour. Laboratory: 2 hours
Prerequisite(s): None.

EET-1130 Basic Audio Electronics
3 Credits
Basic DC and AC circuits, amplifier theory, audio distortion, electronic test equipment operation and soldering techniques. Designed for non-EET majors.
Lecture: 2 hours. Laboratory: 2 hours
Prerequisite(s): MATH-1100 Mathematical Explorations or higher level math, or departmental approval.

EET-1140 Productivity Tools for Engineering
2 Credits
Productivity Tools for Engineering exposes students to word processing, spreadsheets and CAD (Computer Aided Design) programs directed at the electronic engineering technology environment.
Laboratory: 4 hours
Prerequisite(s): ENG-1010 College Composition I; and eligibility for MATH-0965 Intermediate Algebra; or departmental approval.

EET-1150 Basic Robotics with Math
2 Credits
The course provides an introduction to embedded control principals using C programming with an emphasis on mathematics.
Lecture: 1 hour. Laboratory: 2 hours
Prerequisite(s): None.

EET-1161 Direct Current Circuits
3 Credits
Introduction to direct current circuits that includes engineering notation, the meaning of voltage, current, resistance (including color code), electrical units, power dissipation, the American Wire Gauge (AWG) table, Ohm's law, Kirchoff's Voltage Law (KVL), Kirchoff's Current Law (KCL), series circuits, parallel circuits, series/parallel circuits, component troubleshooting, resistance capacitance (RC) and resistance inductance (RL) circuits (charge, discharge and time constants). Circuit theorems include Thevenin and Norton equivalent circuits, mesh and nodal analysis.
Lecture: 2 hours. Laboratory: 3 hours
Prerequisite(s): MATH-0955 Beginning Algebra, or concurrent enrollment; appropriate Math placement score; or departmental approval. OAN and CTAN Approved: OET001 and CTEET001.

EET-1170 Surface Mount Soldering
1 Credit
Develop skills using surface mount technology (SMT), through hole technology (THT), and connectors using soldering equipment and techniques to facilitate design, construction and rework of circuit boards.
Laboratory: 2 hours
Prerequisite(s): None.

EET-1185 Single Board Computers and Applications
3 Credits
An introductory course on Single Board Computers (SBC) with an emphasis on embedded applications. Topics include standard interface devices like keyboards, High-Definition Multimedia Interface (HDMI), Universal Serial Bus (USB), General Purpose Input and Output (GPIO) ports, conventional serial communications. Communicating with external sensors, like Global Positioning System (GPS), infrared transmission and detection, accelerometers, etc., are discussed from the aspect of programming. Lab work includes use of circuit simulation software.
Lecture: 2 hours. Laboratory: 2 hours
Prerequisite(s): EET-1100 Introduction to Robotics or EET-1150 Basic Robotics with Math or departmental approval.
EET-1190 Printed Circuit Layout
3 Credits
Examines use of contemporary program(s) to lay out printed circuit board in single and multiple layers. Design rules, current return paths, crosstalk and other anomalous conditions are explored.
Lecture: 2 hours. Laboratory: 2 hours
Prerequisite(s): EET-1161 Direct Current Circuits or concurrent enrollment.

EET-1195 Unmanned Aerial Vehicles
3 Credits
Addresses the emerging market for unmanned aerial vehicle (drones), their ethical use, safety issues, legal issues, electrical and mechanical components, on-board control systems, software and remote control.
Lecture: 2 hours. Laboratory: 2 hours
Prerequisite(s): EET-1100 Introduction to Robotics or EET-1150 Basic Robotics with Math or departmental approval.

EET-1210 AC Electric Circuits
3 Credits
Fundamentals of alternating current (AC) circuits involving resistance, capacitance, and inductance. Sinusoidal voltage, current power, phase, resonance, and frequency response of basic circuit elements in series, parallel, and series-parallel connections as analyzed using Kirchhoff's laws, Mesh, Nodal, and Bridge Network analysis, Delta-Wye conversions, Superposition, Thevenin's, Norton's and Maximum Power Transfer theorems. Decibels, filters, Bode plots, Fourier series, polyphase transformers, and system analysis are studied. Computer simulation and practical laboratory experience using AC instrumentation for measuring series-parallel networks to observe and verify theory and concepts presented during lectures.
Lecture: 2 hours. Laboratory: 2 hours
Prerequisite(s): EET-1161 Direct Current Circuits; and EET-1180 Surface Mount Soldering, or concurrent enrollment; and MATH-0965 Intermediate Algebra or concurrent enrollment, or appropriate Math placement score; or departmental approval.
OAN Approved: OET003

EET-1220 Circuits and Electronics
3 Credits
An introductory course to practical electricity that involves Direct-Current (DC) and Alternating-Current (AC) circuit fundamentals and supporting topics. An emphasis is placed on practical applications found in residential and commercial locations. Additionally motors, transformer, lighting, high voltage and low voltage circuits are included with emphasis on safety.
Lecture: 2 hours. Laboratory: 2 hours
Prerequisite(s): MATH-1530 College Algebra or concurrent enrollment; or MATH-153H Honors College Algebra or concurrent enrollment; or departmental approval.

EET-1241 Digital Fundamentals
3 Credits
Introductory course to digital circuits. Logic and arithmetic operations are studied, designed and tested in a laboratory environment using discrete integrated circuit gates and programmable logic devices (PLD). Base 2 (binary) and base 16 (hexadecimal) number systems are used in conjunction with Boolean algebra and other theorems. Foundation for continued study of microprocessors/microcontrollers.
Lecture: 2 hours. Laboratory: 2 hours
Prerequisite(s): EET-1161 Direct Current Circuits, or concurrent enrollment; or departmental approval.
OAN Approved: OET002; CTAN approved: CTEET002.

EET-1250 FAA Drone Certification Test Preparation
3 Credits
This course prepares students for the Federal Aviation Administration's (FAA) drone certification test.
Lecture: 2 hours. Laboratory: 2 hours
Prerequisite(s): None.

EET-1302 Cisco I: Basic Networking Technologies
3 Credits
Introduces to architecture, structure, functions, components, and models of the Internet and other computer networks. The principles and structure of IP addressing and the fundamentals of Ethernet concepts, media, and operations are introduced to provide a foundation for the curriculum which enables students to build simple LANs, perform basic configurations for routers and switches, and implement IP addressing schemes to provide a foundation for the curriculum.
Lecture: 2 hours. Laboratory: 2 hours
Prerequisite(s): EET-1302 Cisco I Basic Networking Technologies, or concurrent enrollment. CTAN Approved: CTIT007.

EET-1312 Cisco II Basic Routing and Switching
3 Credits
Covers the architecture, components, and operations of routers and switches in a small network. Ability to configure a router and a switch for basic functionality, including preparing students to troubleshoot and resolve common issues with RIPv1, RIPv2, single-area and multi-area OSPF, virtual LANs, and inter-VLAN routing, in both IPv4 and IPv6 networks.
Lecture: 2 hours. Laboratory: 2 hours
Prerequisite(s): EET-1302 Cisco I Basic Networking Technologies, or concurrent enrollment. CTAN Approved: CTIT008.

EET-1814 Special Topics: FAA Drone Certification Preparation
3 Credits
The Federal Aviation Administration (FAA) requires passing a certification test to operate drones in certain restricted areas. This course prepares students for the certification test.
Lecture: 2 hours. Laboratory: 2 hours
Prerequisite(s): None.

EET-1820 Independent Study/Research in Electrical/Electronic Engineering Technology
1-3 Credits
Directed individual study. Study/research title and specific content arranged between instructor and student (see Credit Schedule of classes for current offerings). May be repeated for a maximum of six credits of different topics.
Lecture: 1-3 hours
Prerequisite(s): Departmental approval, and instructor approval, and ENG=0990 Language Fundamentals II or appropriate score on English Placement Test.
EET-182S Independent Study/Research Lab in Electrical/Electronic Engineering Technology
1,3 Credit
Independent two-hour lab per credit. Directed individual study. Study/ research title and specific content arranged between instructor and student (see Credit Schedule of classes for current offerings). May be repeated for a maximum of six credits of different topics.
Laboratory: 2-6 hours
Prerequisite(s): Departmental approval, and instructor approval, and ENG-0990 Language Fundamentals II or appropriate score on English Placement Test.

EET-1910 Directed Practice Electrical Utility Technology I
4 Credits
Supervised practical applications of electrical substation worker job duties in a setting under direct supervision of FirstEnergy personnel. Emphasis on safety practices and regulations, using substation vehicles and equipment, and procedures and tasks related to use and maintenance of an electrical substation.
Other Required Hours: Directed Practice: 20 hours per week (300 hours per semester)
Prerequisite(s): EET-1161 Direct Current Circuits, and departmental approval: admission to the Electric Utility Technology program.

EET-1915 Directed Practice Substation Utility Technology I
4 Credits
Supervised practical applications of electrical substation worker job duties in a setting under direct supervision of FirstEnergy personnel. Emphasis on safety practices and regulations, using substation vehicles and equipment, and procedures and tasks related to use and maintenance of an electrical substation.
Other Required Hours: Directed Practice: 20 hours per week (300 hours per semester)
Prerequisite(s): Concurrent enrollment in ISET-1420 Applied Electricity I, and departmental approval: admission to Electrical Utility Technology Program.

EET-1920 Directed Practice Electrical Utility Technology II
4 Credits
Supervised practical applications of electrical overhead line worker job duties in a setting under personal supervision of FirstEnergy personnel. Emphasis on skills required to perform work on secondary voltage circuits. Emphasis on the installation of services, street lighting, and secondary circuits, bucket truck familiarization and bucket rescue. Overview of distribution electrical systems, and Occupational Safety and Health Administration (OSHA) rules. Safety topics include: Work Zone Traffic Control; Minimum Approach Distances; Rubber Protective Equipment; and Knowledge of UD Excavation/Trenching/Shoring.
Other Required Hours: Directed Practice: 20 hours per week (300 hours per semester).
Prerequisite(s): EET-1910 Directed Practice Electric Utility Technology I, and EET-1210 AC Electric Circuits, or concurrent enrollment; or departmental approval.

EET-1925 Directed Practice Substation Utility Technology II
4 Credits
Second in a four part series providing the student with a broader skill set as well as enhanced knowledge and skill level necessary to safely assist in the performance of routine repairs on distribution and power transformers, bushings, circuit breakers, disconnect switches, control equipment and other de-energized electrical equipment used in the distribution of electrical energy.
Other Required Hours: Directed Practice: 20 hours per week (300 hours per semester)
Prerequisite(s): EET-1915 Directed Practice Substation Utility Technology I, and concurrent enrollment in ISET-1420 Applied Electricity II.

EET-2111 Industrial Electronics I
3 Credits
Construction, theory of operation, performance characteristics relative to the application of DC motors, AC Single phase motors, AC single phase transformers, AC three phase transformers, AC three phase motors, specification and characteristics of power switching devices like triacs and silicon controlled rectifiers, Metal Oxide Semiconductor Field Effect Transistors (MOSFETS), power factor, opto-isolators, power supplies, linear and switch-mode regulators, Pulse Width Modulation (PWM), ground fault circuit interrupters (GFCI), relays, and safety.
Lecture: 2 hours. Laboratory: 2 hours
Prerequisite(s): EET-1210 AC Electric Circuits.

EET-2120 Electronics I
3 Credits
Course includes the most common solid-state devices used in electronic circuits: silicon and germanium diodes, zener diodes, Light Emitting Diodes (LEDs) Bipolar Junction Transistors (BJTs), and Field Effect Transistors (FETS). Graphical and analytical DC and AC analysis of various electronic circuits used. Computer circuit analysis program MultiSim used to predict DC voltages and currents and frequency response of different circuits. Laboratory experiments reinforce topics studied in lecture.
Lecture: 2 hours. Laboratory: 2 hours
Prerequisite(s): EET-1210 AC Electric Circuits; or departmental approval.

EET-2131 Digital Communication Fundamentals
3 Credits
A continuation of Signal Analysis course that expands on elementary digital modulation techniques, types of binary signals, speech coding, signal analysis and network theory. Topics include sampling, coding, bandwidth for baseband digital signals, data communications protocol including TCP/IP and error correction/detection techniques.
Lecture: 2 hours. Laboratory: 2 hours
Prerequisite(s): EET-2170 Signal Analysis, or concurrent enrollment.

EET-2160 Surface Mount Soldering
1 Credit
Surface mount soldering uses surface mount soldering equipment and techniques to facilitate design, construction and rework of circuit boards.
Laboratory: 2 hours
Prerequisite(s): EET-2170 Signal Analysis, or departmental approval: prior work experience.
EET-2170 Signal Analysis
3 Credits
Introduces bandwidth, frequency response, noise, modulation, spectrum analysis and distortion and how they apply to design, troubleshooting and circuit operation of audio and radio frequency circuits.
Lecture: 2 hours. Laboratory: 2 hours
Prerequisite(s): EET-2120 AC Electric Circuits.

EET-2180 EET Applied Calculus
3 Credits
An introductory course to calculus with an emphasis on electrical/electronic applications. Topics include: limits; differentiation and graphical applications of the derivative; and indefinite and definite integration and applications. Emphasis on technology as a tool through use of graphing calculator/computer.
Lecture: 3 hours
Prerequisite(s): EET-2120 Electronics I and MATH-1540 Trigonometry, or concurrent enrollment; or MATH-154H Trigonometry or concurrent enrollment.

EET-2220 Electronics II
3 Credits
Continuation of electronic circuits. Includes study of operational amplifiers, instrumentation amplifiers, voltage comparators, active filter circuits, Analog-to-Digital and Digital-to-Analog converters, and an introduction to applied calculus.
Lecture: 2 hours. Laboratory: 2 hours
Prerequisite(s): EET-2120 Electronics I.

EET-2231 Wired & Wireless Communication
3 Credits
Final course in electronic communications series. Provides an in-depth study of fiber optic microwave, broadband wired and cellular communication systems.
Lecture: 2 hours. Laboratory: 2 hours
Prerequisite(s): EET-2131 Digital Communication Fundamentals.

EET-2242 C and ASM Programming with Embedded Applications
3 Credits
Introduces microprocessor and microcontroller internal and external hardware components. Assembly language (ASM) programming is introduced to illustrate the internal working of a microcontroller. The C programming language is taught in a regular (C++) and embedded environment.
Lecture: 2 hours. Laboratory: 2 hours
Prerequisite(s): EET-1241 Digital Fundamentals, or departmental approval.

EET-2250 Industrial Electronics II
3 Credits
Overview of common industrial power control circuits and devices including thyristors, unijunction transistors, relays and transient suppression devices. Introduction to relay logic and operation, and programming of programmable controller.
Lecture: 2 hours. Laboratory: 2 hours
Prerequisite(s): EET-2220 Electronics II or concurrent enrollment.

EET-2290 Electrical Design Project
2 Credits
Capstone course for Electrical-Electronic Engineering program. Designed to allow students opportunity to demonstrate and apply capabilities and skills acquired during their previous engineering technology coursework. Students will choose an approved electronic project compatible with their interest and background. Project will include research, documentation, construction and testing, and conclude with a report and presentation of results.
Lecture: 1 hour. Laboratory: 3 hours
Prerequisite(s): EET-2242 C and ASM Programming with Embedded Applications.

EET-2302 Cisco III Intermediate Routing and Switching
3 Credits
Covers the architecture, components, and operations of routers and switches in a larger and more complex network. Includes how to configure routers and switches for advanced functionality. Configuration and troubleshooting routers and switches to resolve common issues with OSPF, EIGRP, STP and VTP in both IPv4 and IPv6 networks. Develop the knowledge and skills needed to implement DHCP and DNS operations in a network.
Lecture: 2 hours. Laboratory: 2 hours
Prerequisite(s): EET-1312 Cisco II Basic Routing and Switching. CTAN Approved: CTIT009.

EET-2312 Cisco IV Basic Wan Technologies
3 Credits
The WAN technologies and network services required by converged applications in a complex network. Understanding the selection criteria of network devices and WAN technologies to meet network requirements. Configure and troubleshoot network devices and resolve common issues with data link protocols. Develop the knowledge and skills needed to implement IPSec and virtual private network (VPN) operations in a complex network.
Lecture: 2 hours. Laboratory: 2 hours
Prerequisite(s): EET-2302 Cisco III Intermediate Routing and Switching, or concurrent enrollment. CTAN Approved: CTIT010.

EET-2400 Biomedical Instrumentation I
3 Credits
First course in the Biomedical Engineering Technology Instrumentation sequence. Study of general hospital equipment such as safety analyzers, medtesters, ECGs, patient monitors, simulators, and centrifuges. Determine performance of equipment and verify that the equipment performs to specifications using simulators and analyzers. Equipment is evaluated using preventative maintenance procedures and operating procedures found in the equipment manuals.
Lecture: 2 hours. Laboratory: 2 hours
Prerequisite(s): EET-2120 Electronics I or concurrent enrollment.

EET-2410 Biomedical Instrumentation II
3 Credits
Continuation of biomedical program. Study of general hospital equipment such as Safety Analyzers, Medtesters, IV Pumps, Defibrillators, Electrical Surgery Units, and Ventilators. Determine performance of equipment and verify that the equipment performs to specifications using simulators and analyzers. Equipment is evaluated using preventative maintenance procedures and operating procedures found in the equipment manuals.
Lecture: 2 hours. Laboratory: 2 hours
Prerequisite(s): EET-2400 Biomedical Instrumentation I, and EET-2220 Electronics II or concurrent enrollment.
EET-2490 Biomedical Design Project  
2 Credits  
Capstone course for Biomedical Engineering program. Designed to allow students to demonstrate and apply capabilities and skills acquired during their previous engineering technology coursework. Students are provided with a biomedical project compatible with their interest and background. Project includes research, documentation, construction and testing, and concludes with a report and presentation of results.  
Lecture: 1 hour Laboratory: 3 hours  
Prerequisite(s): EET-2220 Electronics II or concurrent enrollment, and EET-2410 Biomedical Instrumentation II or concurrent enrollment.

EET-2500 Instrumentation and Control  
3 Credits  
Concepts and practice in measurement and control of mechanical process variables in industry. Introduction to methods of instrumentation, characteristics of instruments, sensors, data acquisition and presentation, measurement and analysis of basic dimensions, force, motion, pressure, temperature, fluid flow and fluid viscosity.  
Lecture: 2 hours Laboratory: 3 hours  
Prerequisite(s): EET-1220 Circuits and Electronics, or EET-2120 Electronics I, or departmental approval.

EET-2520 Programmable Logic Controllers  
3 Credits  
Introduction to programmable logic controller terminology, architecture, input/output modules and memory. Relay schematics and ladder logic diagrams and programming of programmable logic controllers are covered and reinforced in practical laboratory experiments. Sensing devices as limit switches, on/off electrical devices, temperature switches, timing and counting devices as well as event-driven and time-driven sequences are also included.  
Lecture: 2 hours Laboratory: 2 hours  
Prerequisite(s): EET-1220 Circuits and Electronics, or EET-1210 AC Electric Circuits and EET-1241 Digital Circuits/Microprocessors I. OAN and CTAN Approved: OET022 and CTEET003.

EET-2591 Communications Design Project  
2 Credits  
Capstone course for the Digital Communications concentration in the Electronic Engineering Technology program. Designed to allow students to demonstrate and apply capabilities and skills acquired during previous engineering technology coursework. Students choose approved communications project compatible with their interest and background or can use a default project. Project includes research, documentation, construction and testing, and concludes with a report and an oral presentation of results.  
Laboratory: 4 hours  
Prerequisite(s): EET-1180 Surface Mount Soldering and EET-1240 Digital Fundamentals and EET-2220 Electronics II, or concurrent enrollment; and EET-2231 Wired and Wireless Communications, or concurrent enrollment.

EET-279H Sophomore Honors Contract  
1 Credit  
Sophomore Honors Contract in Electrical Engineering Technology complements and exceeds requirements and expected outcomes for an existing EET 2000-level course through formulation of a contract with a faculty mentor. In conjunction with a faculty mentor, student will formulate a contract that upon completion will result in distinctive scholarship appropriate to honors 2000-level. In order to complete the contract, student is required to meet on a regularly scheduled basis with instructor offering the contract for mentor-student tutorial sessions. A maximum of six Honors Contracts (six credits) may be taken at the College (includes 179H and 279H).  
Lecture: 1 hours  
Prerequisite(s): Must be taken concurrently with a 2000-level course (not an honors course) in EET, whose instructor agrees to mentor the student in the sophomore honors contract. Departmental approval required.

EET-2813 Special Topics: Cisco CCNA Networking Security  
3 Credits  
Provides next step skills enhancement for individuals with Cisco CCENT level skills in order to broaden their skills to meet the growing demand for network security professionals. Introduces core security concepts and skills needed to install, troubleshoot, and monitor network devices to maintain the integrity, confidentiality, and availability of devices and data. Develop skills required to develop a network security infrastructure, recognize threats and vulnerabilities in a network, and mitigate security threats. Prepares students for the Cisco 210-260 IINS CCNA Security certification exam and meets US National Security Agency and Committee on National Security Systems CNSS 4011 training standard.  
Lecture: 2 hours Laboratory: 2 hours  
Prerequisite(s): EET-1302 Cisco I Basic Networking Technologies and EET-1312 Cisco II Basic Routing and Switching, or departmental approval: current CCENT or CCNA certification.

EET-2830 Cooperative Field Experience  
1-3 Credits  
Open to students eligible for the Cooperative Education Program. Employment in an approved training facility under College supervision. Requirement for one credit is 180 hours of approved work. Students may earn up to three credits in one semester. May be repeated for an accrued maximum of nine credits.  
Other Required Hours: 180 clock hours of approved work per credit hour  
Prerequisite(s): See campus COOP Advisor for the Cooperative Education Program application.

EET-2901 Clinical Internship  
3 Credits  
Internship where students are expected to perform 360 hours of service at a local hospital or other biomedical facility. Students are expected to perform activities related to their biomedical technology field, including but not limited to repair of biomedical equipment, safety inspections, and calibration.  
Other Required Hours: Practicum: 360 hours per semester/36 hours per week for 10 weeks.  
Prerequisite(s): EET-2410 Biomedical Instrumentation II and EET-2220 Electronics II.
EET-2910 Directed Practice Electrical Utility Technology III
4 Credits
Supervised practical applications of electrical overhead line worker job duties in a setting under personal supervision of FirstEnergy personnel. Emphasis on skills required to identify, install, and maintain primary underground residential distribution (URD) equipment, including various methods of troubleshooting URD primary and secondary circuits. Grounding distribution circuits will also be learned. Students will develop the knowledge and skill to safely perform rubber gloving assignments utilizing the insulate and isolate techniques, will perform various tasks while working on an energized three-phase circuit under controlled conditions. Safety topics include: fire extinguisher safety, temporary protective grounds, stored energy devices, and utilities protective service.

Other Required Hours: Directed practice: 20 hours per week at site (300 hours per semester)
Prerequisite(s): EET-1920 Directed Practice Electric Utility Technology II.

EET-2915 Directed Practice Substation Utility Technology III
4 Credits
Third in a four part series providing the student with the advanced knowledge and skills necessary to safely work in a supervised capacity on energized equipment and in an unsupervised capacity on de-energized equipment employed in the production and distribution of electrical energy. This course also introduces the student to power transformer testing, troubleshooting, alarm systems, circuit breaker troubleshooting, reclosers and sectionalizers, OCB maintenance and voltage regulators.

Other Required Hours: Directed Practice: 20 hours per week at site (300 hours per semester)
Prerequisite(s): EET-1925 Directed Practice Substation Utility Technology II and concurrent enrollment in ISET-2240 Applied National Electric Code.

EET-2920 Directed Practice Electrical Utility Technology IV
4 Credits
Fourth in a four part series providing the student with the knowledge and skills to work safely and competently in a supervised or unsupervised capacity. The fourth series is the culmination of prior courses with the introduction of advanced knowledge and skills related to Motor Operates Air Brake Switch, electronic recloser controls, SF6 gas breakers, ACB maintenance, OCB timing and travel tests, calibration of various substation equipment, PT testing, phasing, switching procedures and the performance of energized primary work.

Other Required Hours: Directed Practice: 20 hours per week at site (300 hours per semester).
Prerequisite(s): EET-2910 Directed Practice Electrical Utility Technology III.

EET-2925 Directed Practice Substation Utility Technology IV
4 Credits
Fourth in a four part series providing the student with the knowledge and skills to work safely and competently in a supervised or unsupervised capacity. The fourth series is the culmination of prior courses with the introduction of advanced knowledge and skills related to Motor Operates Air Brake Switch, electronic recloser controls, SF6 gas breakers, ACB maintenance, OCB timing and travel tests, calibration of various substation equipment, PT testing, phasing, switching procedures and the performance of energized primary work.

Other Required Hours: Directed Practice: 20 hours per week on site (300 hours per semester).
Prerequisite(s): EET-2915 Directed Practice Substation Utility Technology III and concurrent enrollment in ISET-2200 Industrial Motor Controls.